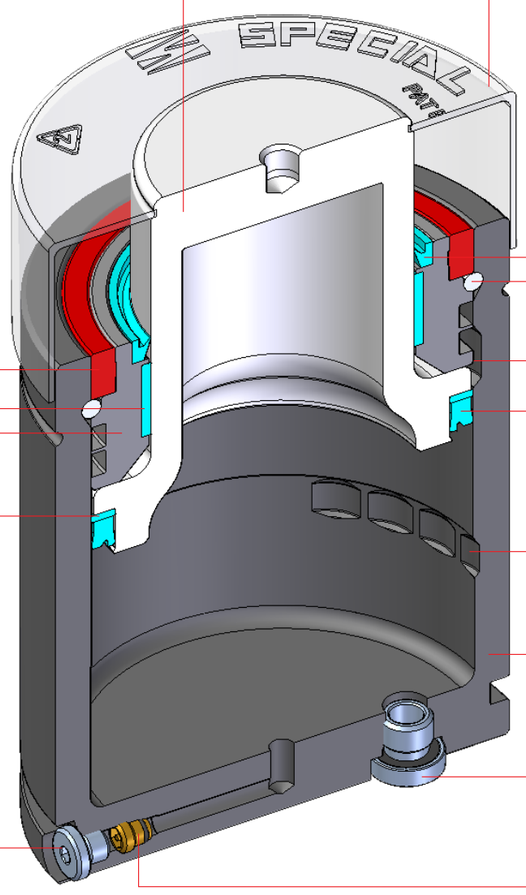
KE 750 B ÷ KE 18500 B

* included in the mainenance kit - ** included in the assembled bush



Rod

Dust Ring*

Rod guide**

Assembled bush*

Back-up piston seal*

Plug M6 Cod. 39TM6
Plug 1/8”G Cod. 39T1/8

Skudo

Rod wiper**

Retaining C-ring

USAS

Rod seal*

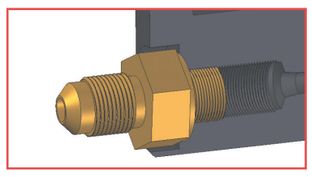
OSAS

Body

OPAS

One way valve Cod. 59VU02*

Not self-contained version



Charging hole
M6 (KE750B ÷ KE7500B)
1/8"G (KE12000B ÷ KE18500B)

Cod. **39DMA**
The DMA multi device is designed and built to facilitate cheking, decreasing/increasing pressure or pressurising self-contained cylinders or hosed systems. It consists of two units: Main (**39DMCILA**) and secondary (**39DMCPVA**).

Cod. **39DMCPVA**
3 meters of high pressure hose, 1 female Cejn quick fit, 1 ON/OFF valve, 1 shut off valve and 1/2-20 UNF male coupling to connect to the nitrogen bottle.

Cod. **39DMCILA**
Multi device for charging, discharging and adjust gas pressure.

Cod. **QDFV01** for 1/8”G hole
Cod. **QDFV02** for M6 hole
Cejin male quick fit adapter for direct charging.

NITROGEN CYLINDERS MAINTENANCE KIT

KE750B	Cod. **39BMKE00750B**
KE1000B	Cod. **39BMKE01000B**
KE1800B	Cod. **39BMKE01800B**
KE3000B	Cod. **39BMKE03000B**
KE4700B	Cod. **39BMKE04700B**
KE7500B	Cod. **39BMKE07500B**
KE12000B	Cod. **39BMKE12000B**
KE18500B	Cod. **39BMKE18500B**

Cod. **58CE03** for M6 thread
Cod. **58CE05** for 1/8”G thread
Hex T-key to remove charging hole plug and valve retaining screw.

Cod. **39DDS01A**
Discharging device.
BLUE side for M6 hole
GOLD side for 1/8”G hole

The complete assembled kit along with this step-by-step service manual is result of Special Springs research for the most useful manteniance operation for Special Springs nitrogen gas cylinders. Few minutes and the Special Springs nitrogen gas cylinders are regenerated as new one.

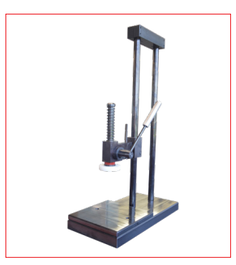
Cod. **58EAR**
Retaining C-Ring removal tool.

Cod. **58KNIPEX**
Multipurpose pliers with spouts.

Special Springs along with its own global network are pleased to help you anytime for the best result of your work.

Before starting any maintenance work, carefully check if the rod or the body of the cylinder are damage or wear. If yes, it is recommended to replace the cylinder immediatley and do not procede with the maintenance operation.

Cod. **39PM02A**
Table manual press for easy and safe positioning of components.



Cod. **58EM06**
Cod. **58EM08**
T-handle to remove piston-rod + bushing.

Before starting any maintenance work carefully check the maintenance kit to correspond to the model of cylinder for which is required.

Before starting any maintenance work carefully check this step-by-step manual to correspond to the model of cylinder for which is requied.

Cod. **58CD01**
Torque wrench for one way valve 59VU02.

Cod. **39RFG**
Special Springs gas detector for easy gas leakage.

Instructions and pictures of this step-by-step manual could slightly differ from practise.

All Special Springs step-by-step manuals are available for download from our web site: www.specialsprings.com

Cod. **49TB014** (KE750B)
Cod. **49TB017.5** (KE1000B)
Cod. **49TB026.5** (KE1800B)
Cod. **49TB035.5** (KE3000B)
Cod. **49TB048.5** (KE4700B)
Cod. **49TB061.5** (KE7500B)
Cod. **49TB081.5** (KE12000B)
Cod. **49TB106.5** (KE18500B)

Reassembly guiding tube for the bushing + reassembly positioning tube for the retaining C-ring.

Cod. **49TN023** (KE750B)
Cod. **49TN027** (KE1000B)
Cod. **49TN032** (KE1800B)
Cod. **49TN045** (KE3000B)
Cod. **49TN055** (KE4700B)
Cod. **49TN070** (KE7500B)
Cod. **49TN088** (KE12000B)
Cod. **49TN120** (KE18500B)

Anti scratch nylon tube to set the bushing into the cylinder body to release the retaining C-ring.

NITROGEN GAS CYLINDERS MAINTENANCE INSTRUCTIONS

KE 750 B
KE 1000 B
KE 1800 B
KE 3000 B
KE 4700 B
KE 7500 B
KE 12000 B
KE 18500 B

UK Sole Distributer

BERGER TOOLS LTD

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E: sales@berger-tools.co.uk
W: www.berger-tools.co.uk

SPECIAL SPRINGS

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I. SKUDO REMOVAL.

1. Manually remove the protective cap SKUDO. Do not use tools. For certain models the operation will require a certain strain.
Preserve the protective cap SKUDO for further reassembly.

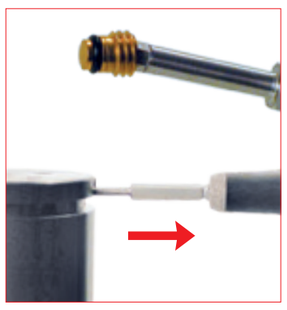
III. DISCHARGING + VALVE REMOVAL for self-contained cylinders.

3. Remove the protective screw cap from the charging hole by using the appropriate tool.
Preserve the the protective screw cap for further reassembly.
58CE05 for the 1/8 G port.
58CE03 M6/3 for the M6 port.

4. Thread DDS discharging device on the charging port then exhaust completely the pressure. Point away from the operator for maximum safety.
39DDS01A BLUE side for M6 hole
GOLD side for 1/8"G hole

5. Be sure the pressure is completley exhauted by pressing down the piston rod into the cylinder body.
Then unthread the discharging device from the discharging hole.

III. EXTRACTION OF THE RED SEAL



6. Hang and release the one way valve from the hole by using the appropriate tool. It would be normal some oil leak from the hole when upside down the cylinder.
58CD01 one way valve removing-setting dynamometric wrench.

7. With the help of a press and the appropriate positioning tube, re-insert the bushing in the body of the cylinder.
Extract the red seal.
39PM02A manual press
49TN Positioning tube

IV. DISCHARGING non self-contained cylinders.

A. Repeat the procedure as above indicated at points 1

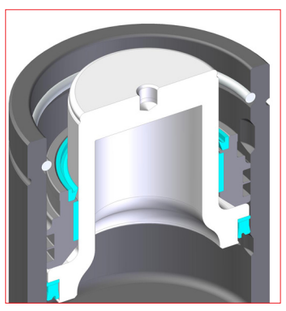
B. To exhaust pressure of hosed cilynders open the discharging valve on the control panel.

C. Make sure there is no more gas inside the cylinders connected to the system, by making the rods enter completely inside the body.

D. Disconnect all the cylinders from the system and repeat the procedure as outlined in point 6

V. RETAINING RING REMOVAL.

7. Position the anti scratch nylon removal tube on the cartridge then press down into the body for about 25 mm to set free the retaining C.
39PM02A manual press.
49TN... nylon removal tube.



8. Cylinder section with piston/rod and cartridge completely pressed into the body.
The retaining C-ring result free.

9. Position and clamp the cylinder into a self - centring chuck or a wise.

10. Remove the retaining C-ring by using the appropriate removal tool and pincer.
Preserve the retaining C-ring for further reassembly.
58EAR C-ring removal tool.
58KNIPEX pincer.

VI. PISTON ROD + CARTRIDGE REMOVAL.

11. Manually extract together piston/rod/cartridge from the cylinder body. It would be required some strain for certain models.
58EM04 T-handle M4 thread.
58EM06 T-handle M6 thread.
58EM08 T-handle M8 thread.

12. Slide off the cartridge from the rod and remove seal and guide from the piston.
Discard all of them.

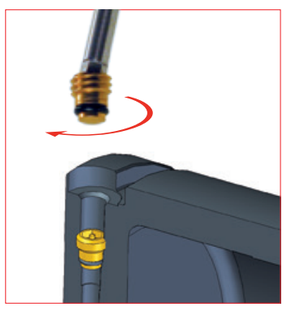
VII. CLEANING AND INSPECTION.

13. Carefully check and clean the cylinder body. If the body show any wear or damage do not use it again and replace it with a new one.

14. Carefully check and clean the piston-rod. If the piston rod shows any damage, wear or scratch do not use it again and replace it with a new one.

VIII. VALVE REASSEMBLY.

15. Carefully clean the lodging hole of the valve with an airgun and then position the new one way valve supplied along with the maintenance kit. Be care on the right position of it.



16. Position and thread the one way valve into the hole by using the appropriate special dynamometric tool already calibrated. **Torque force required maximum 0,6 Nm.** Do not exceed the maximum torque force indicated to not damage the one way valve.
58CD01 dynamometric wrench.

IX. REASSEMBLY OF PISTON ROD + CARTRIDGE.

17. Assemble in the correct places on the piston, the new seal and back up ring
Pay maximum attention to the correct positioning of the seal and not to damage it.

18. Adequately grease the inside of the bushing with the lubricant provided with the maintenance kit. Manually insert the bushing on the piston rod till. Pay attention to the correct orientation of the bushing.

19. Lubrificate inside the cylinder body with the specific Special Springs oil supplied with the repair kit.
Be care to the quantity as indicated for each cylinder model.

Model	OIL
KE 750 B	1,5 ml
KE 1000 B	2 ml
KE 1800 B	3 ml
KE 3000 B	4 ml
KE 4700 B	5 ml
KE 7500 B	8 ml
KE 12000 B	15 ml
KE 18500 B	30 ml

NOTE: Each oil dispenser contains a volume of 5 ml.

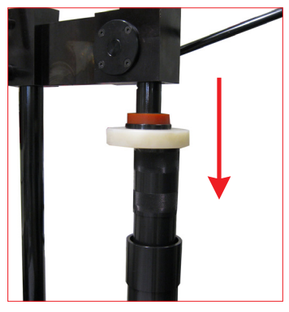
X. REASSEMBLY OF THE RETAINING C-RING.

20. Grease all over around the cartridge, the guide and the seal with the special grease supplied with the kit.

21. Position the conical centring guide tube on the top side of the cylinder body, then position the
piston/rod/cartridge into the tube and assure to keep all perpendicular to the tube itself and the cylinder body.
49TB... conical centring guide tube.

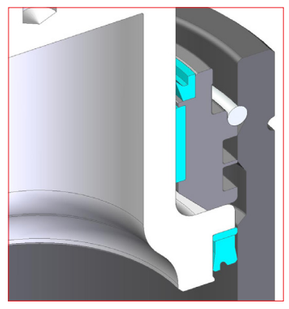
22. Insert the positioning tube over the rod in contact with the upper side of the cartridge, then by the manual press, press down into the cylinder body all the
assembled parts.
49TB... conical centring guide tube.
39PM02A manual press.

23. Position the retaining C-ring into the conical centring guide tube.



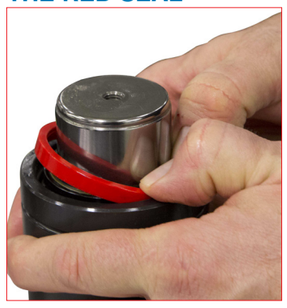
24. Insert the positioning tube in contact with the retaining C-ring , then by the manual press, press down the retaining C-ring into the groove. When the C-ring enter
correctly into the groove you will hear a loud like "CLICK".
49TB... conical centring guide tube.
39PM02A manual press.

25. Manually extract the assembly piston-rod/cartridge completely.
58EM04 T-handle M4.
58EM06 T-handle M6.
58EM08 T-handle M8.



26. Cut off with all components correctly assembled.

XI. REASSEMBLY OF THE RED SEAL

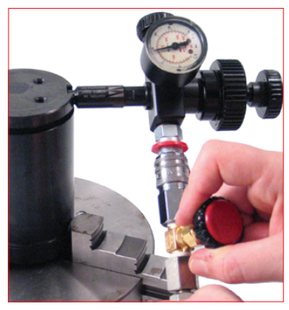


27. Reposition the red seal on the groove

XII. CHARGING AND FORCE TEST for self-contained cylinders.

28. Check the correct assembly of the pressare regulation valve on the gas bottle, then open the main tap. The gauge on the left will indicate the bottle pressure.
39R... pressure regulation valve.

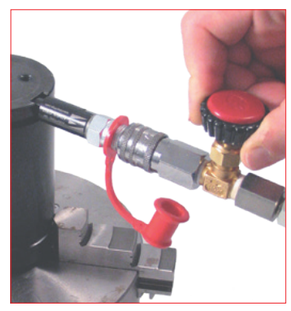
29. Adjust the required maximum pressure trought the regulation valve. The gauge on the right will indicate the maximum allowed pressure to charge the cylinder.
39R... pressure regulation valve.



30 . Select and assemble the desired charging adapter and thread it on the charging port. For an easy and safety work carefully follow the instructions supplied with the charging unit.
DO NOT exceed the maximum pressure indicated for any specific model.
39DMA charging unit.

31. With the appropriate anti-scratch nylon tube, reposition correctly the red seal
49 TB... anti-scratch nylon tube
39PM02A manual press

32. Rached and stabilized the desired pressure, for an easy and safety work carefully follow the instructions supplied with the charging unit.
39DMA charging unit.



33. When directly charging throught the adapter and desired pressure is reached shut off the hose and bottle valves and disconnect the the quick fit coupling.
For an easy and safety work carefully follow the instructions supplied with the charging unit.
39DMCPVA charging unit.
39QDFV... adapter for direct charging.

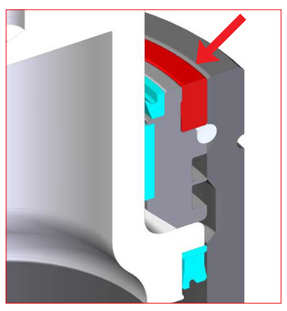
34. Unthread and relase the adapter from the charging hole.

35. More precise force control can be carried out by using the digital force testing rigs.
FT... Digital force tester
IPCDIG Digital force tester

36. It is always recommended to check leaks on the charging port after the maintenance work and before re-using the cylinders by using the special gas detector.
39RFG Special Springs gas detector.

36.1. It is always recommended to check leaks on the upper side of the cylinders after the maintenance work and before re-using the cylinders by using the special gas detector.
39RFG Special Springs gas detector.

37. Thread the protective screw into the charging hole by using the appropriate tool.
58CE05 for 1/8G charging port.
58CE03 for M6 charging port.

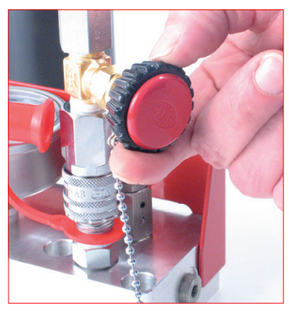


38. It is advisable to always double check the correct assembly of the red seal, after the charge is done.

XIII. CHARGING AND FORCE TEST for non self-contained cylinders.

A. After positioning and hosing all the cylinders, proceed through the quick fit device trough the control panel for charging all the cylinders.
39DMCPVA control panel charging unit.

B. Adjust the required pressure on the regulation valve on the bottle. The gauge on the right will indicate the maximum allowed pressure to charge the cylinders.

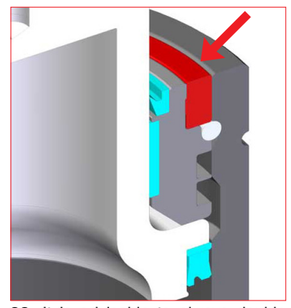


C. Connect the female quick fit on the male quick fit on the panel and open the gas tap. For an easy and safety work carefully follow the instructions supplied with the charging unit.
39DMCPVA control panel
charging unit.

D. It is advised to always double check the ideal fit of the connections, by using the appropriate leakage detector spray directly on the fittings
39RFG leakage detector spray

XIV. SKUDO REASSEMBLY.

E. It is always recommended to check leaks on the upper side of the cylinders by using the special gas detector.
39RFG Special Springs gas detector.



38. It is advisable to always double check the correct assembly of the red seal.

39. Manually reassembly the protective cap SKUDO on the proper groove on the top of the rod. It would be required a light pressure to correctly position it. When the protective cup SKUDO enter correctly into the groove you will hear a loud like "CLICK".